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GOVERNMENT'S ROLE IN EARLY STAGE GROWTH COMPANIES—AN AUSTRIAN PERSPECTIVE

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ABSTRACT

This research study focuses on the fundamental question whether governmental actions can increase social utility in the early stage growth company sector. Previous research has shown that the current Finnish high tech private sector is heavily occupied by government agencies and intervention but the actual results are very poor and even counterproductive from the growth companies perspective. In the recent scientific research it is often assumed that governmental intervention is necessary and beneficial to the society.

The study uses Austrian economics and more specifically the Misesian approach, praxeology, as its methodology that is based on the logical process of deduction from the self-evident axiom of human action. It is shown that the conclusions from the deductive process are absolutely true and cannot be tested nor verified by empirical evidence—there are no constant variables in human sciences. In addition individuals have free will and their values and choices are subjective (qualitative). It is demonstrated that interpersonal comparisons are not possible between people and therefore it is not possible to measure social utility or value. The study also emphasises the value-free role of science where the scientist needs to restrain from any personal value preference, advocating any social or political policy, or ethical standing. "The greatest happiness of the greatest number" is an example of value judgement used in economics today.

It is proven that only voluntary cooperation among members of society maximises social welfare and benefits all the participants. Any interference to the free market voluntary process by coercion (governmental action such as taxation) will result in a lowered standard of living for everyone together with market inefficiencies. Furthermore, the study shows that any governmental action whatsoever cannot ever increase social utility—it can only divide and break the peaceful and harmonious voluntary society.

The study is also able to explain the current state and condition of the high tech growth company sector and its ecosystem. It is clearly shown that the lack of available private investment capital for new ventures is a direct consequence of governmental intervention. It is evident that new innovations and growth companies are not valued by the current market situation and any and all governmental actions cannot improve the situation but make it worse, excluding the action of withdrawing from the sector and lowering significantly the general level of taxation.

Keywords: social welfare, high tech growth companies, government intervention, Austrian economics, praxeology

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1 INTRODUCTION

1.1 Early Stage Growth Companies in Finland

> *"The body of economic knowledge is an essential element in the structure of human civilization; it is the foundation upon which modern industrialism and all the moral, intellectual, technological, and therapeutical achievements of the last centuries have been built. It rests with men whether they will make the proper use of the rich treasure with which this knowledge provides them or whether they will leave it unused. But if they fail to take the best advantage of it and disregard its teachings and warnings, they will not annul economics; they will stamp out society and the human race." (Last words in Ludwig von Mises' Human Action; 1998, 881)*

Innovation and advancement of any civilisation rest on the shoulders of the few who are creating and building the future by their inventions and breakthroughs. History is full of examples of great innovation that have changed the way the humanity has lived and experienced its surroundings ever since. Electricity, telecommunications, aviation and transportation are just a few examples that benefit many while in the beginning only a very few understood the purpose and the significance of the inventions. Creativity and great achievements are embraced by many but seldom the circumstances surrounding the creative process have been very favourable. Economical challenges are among the main limitations that slow down the advancement of any society. This is something to emphasise and remember when we currently talk about innovation society and great R&D support for the benefit of all. Not much have changed during the last hundreds of years in the field of innovation process. It has been a struggle and still is—the surroundings have changed and there are more sophisticated tools available. Still, it is not self-evident that our social and intellectual tools have kept up with the advancements of the technology.

This may not be obvious from the surface but there are plenty of signals that try to tell us that not all is well. Finland has been the sweetheart of many public body statistics and comparisons that compare different countries technology and high tech environments. Financial Times (2007) made a report of Finland and noted that the

present picture may not reflect the past historical "success." The population is aging, welfare benefits are burdening the economy, the productive industries are shifting abroad, the regulatory environment is very rigid and taxation among the highest in the world. If these were not enough Finland is not any favourable location for foreign capital either (FT 2007a). Altogether these factors mean that creating and building a high tech growth company in Finland is more than hard—it is almost impossible.

Structurally Finnish support system for emerging growth companies, typically the ones that drive the new innovation forward, has been very government led. The bureaucratic hierarchy extends from the central governmental level to local and special purpose vehicles and institutions. There are over 100 different government support grants and subsidy elements for an entrepreneur to choose from, but they are all divided between more than 10 different public offices. Some of these programs and institutions can even be considered to compete with each other, together with the private sector. Why all these programmes?

Metric	Finland	Israel	Massachusetts
Population Millions	5,2	6,9	6,3
Share of academic degrees	25.00%	24.00%	N/A
Number of new companies annually	23 000	20 000	27 000
R&D investments per capita %	3,5 (#3)	4,1 (#1)	4,9 (N/A)
Annual US patents filed per million capita	166	186	300 (N/A)
Number of initial investments annually (approx.)	100	100	150
			Fault line
Average initial investment M $	0,3	2,8 (#4)	6,2 (#2)
Total annual volume of VC investments M$	220	1650 (#3)	2400 (#2)
Number of companies in the Deloitte Fast Growth 500	4	44	36
Number of annual stock exhange listings	1	35 (1H/2007)	9
Number of companies listed in Nasdaq	0	100	60
Number of active VC funds in early-stage	10	60	50
Global R&D Centers of major corporations	5-6	30-40	10-20

Figure 1 Different growth company environments. (VICTA, 2)

The reason becomes evident from the Figure 1. There is a fundamental problem in the Finnish society: lack of *available* capital. Annual average investments are too small and the overall volume is almost decade smaller. Without proper funding success stories cannot be made. The difference between company listings is very striking when Finland is compared to Israel: annual stock exchange listings 1 to 35 and NASDAQ listings 0 to 100. Considering the success and performance figures in market terms it becomes clear

that Finland is not among the top countries in the world but part of the 3rd world: "What is lacking to the underdeveloped nations is not knowledge, but capital (Mises 1962, 127)." What are innovations worth if they are not ultimately reaching the consumers and hence improve everyone's standard of living?

This acute situation has been noticed not just by the industry itself but also by public bodies. It has been acknowledged that there are several inefficiencies in the system. "Current innovation system in Finland is dominated by the public sector. When services are bought from private sector, operations are guided by public rules and regulations. Finnish innovation system has evolved to a huge, over-sized infrastructure, which doesn't match at all the needs on high growth ventures (VICTA 2007, 3)." The state apparatus has impressed its own risk averse attitude into the high growth sector that by its very nature is, high risk. Almost everyone can get some type of funding and the selection criteria are vague. This ensures that the survival rate of companies over the first "lethal" three years increases but on the other hand it results that the funds are scattered over too many companies resulting that in overall terms they are not sufficient to any individual company to make a significant impact in their business enabling a rapid growth. Some of the subsidized services are also "ear-marked" only to specific public products that are not considered very useful for the entrepreneurs (Koivula 2006, 60).

What is more striking is that it has been discovered that the support system seems to foster its own well-being instead of its customers. This becomes apparent when it is noted that most of the intermediary organisations are either directly or indirectly dependent on government funding. These support organisations are assumed to help growth companies but they are lacking the knowledge and skills for the task (Koivula 2006, 66). Their main competence is to advice on obtaining public funding, not private. There are several parallel or superimposed government programmes with high bureaucratic red tape and very little tangible objectives and results. Many of the programmes funding are based on the amount of participating companies. This naturally reduces the selection criteria and favours "something for everyone" principal resulting lack of adequate resources per company. "In addition the existing players use the support from the government to offer low-priced services and thereby prohibit the business from the commercial players. One clear indication of the self-sufficient system

is the lack of international service providers (e.g. Big 5 consultant or international service providers) from the system because it is virtually impossible to generate business opportunities." (VICTA 2007)

Finnish government also has very significant role in the growth company investment field. The state is practically owner in every growth company that has accepted VC funding in the country. At the end of 2007 Finnish Industry Investment Ltd had made fund commitments to 82 funds. 62 per cent of its fund investments (€371,7m) are invested in early growth companies. These investments are administered by 33 management companies (most of them private VCs). Finnish Venture Capital Association has 38 members, which means that almost all the private venture companies invest public funds. In some of the funds the government has 50 per cent share of the overall fund, or very close to it. Therefore bureaucratic and political influence on private companies cannot be ruled out. In addition to indirect investments the government makes also direct investments and has its own investment vehicles. (FVCA and FII websites[1])

1.2 Research Problem

This research has been motivated by personal interest and practise in the growth company sector. It is one thing to read and learn about growth companies and an entirely different matter also to do those things in practise. These two put together is a strong position but unfortunately it is still not enough. We are bound by the commonly accepted paradigms and beliefs that have become assumptions and a foundation that is not questioned anymore. This Whig theory expects that sciences are always going upwards and onwards each year going by and this movement in time results that everything is better now than before. Even though we are standing on the shoulders of the past intellectual giants we have no need to look back—there is nothing new to learn, it is all accumulated and distilled into our current knowledge. A paradigm can stay unquestioned for decades if not centuries but often there comes a time when anomalies are too big and obvious to be ignored anymore. Then the scientists need to shift their focus from tinkering and ever more specialised improvement of the existing theories back to basics. Physics are certainly in this phase now. Quantum theory does not make

[1] http://www.fvca.fi/ and http://www.teollisuussijoitus.fi/in_english/

much sense—it cannot be tested sufficiently enough in nature. It is almost pure fiction based on mathematics. The same applies to the current state of economics. Most of it does not make much sense and it is mainly treated as a subclass of mathematics. Alfred De Grazia once stated that "much more is forgotten than is known." Are we sure that we have not missed something important? (Younkins 2005, 142-145)

The purpose of the research is to address the role of government for early stage growth companies. It seems to be assumed that government has a fundamental and necessary role in the growth process. This is not merely an assumption but a stated fact even by observing the above-demonstrated examples—it is the current paradigm and dogma. This fact is not questioned in the economic studies and research anymore. It is part of the equation. Still, Murray Rothbard notes that "[t]here is a...well-known difficulty in philosophy and the social sciences which makes systematic error... likely: the infusion of emotions, value judgments, and political ideologies into the scientific process (Rothbard 1997, 198)." This claim gains even more substance when noted that the higher education is entirely monopolised by the state.

The objectives of the study are to find out the extent and the scope that government's involvement with early growth companies' development can be justified by economics. In order to achieve this goal it is necessary to verify the basic role of government first. Therefore the main research question can be formulated as:

Can government increase social utility by its involvement with private growth companies?

In addition, the objective is to clarify the impact and effect of government's interference with private sector's operations in the light of the chosen methodology.

1.3 Research Methodology

This study mainly questions something that is implicitly widely accepted. Therefore it cannot approach the study area from the same angle and by the same tools as the others. Albert Einstein once said that problems cannot be solved at the same level of thinking with which they were created. The current mainstream economics is mainly based on

the legacy of Lord Keynes. Paul A. Samuelson has been (and still is) one of the main promoters of this line of thinking. Without going in detail it can be noted that much of the current economical tradition has its roots borrowed and copied from other sciences—mainly from natural sciences. The Newtonian mechanical view of the world still prevails in economics. But like in physics economics have two theories that do not fit together. Einstein's relative world does not interact with the unpredictable quantum physics. Similarly micro-and macroeconomics are mostly separate and certainly not an integrated theory. They rely on a static worldview (equilibrium is a balance without any movement) that needs to make assumptions that make the relevance of the theories questionable in the real world. How do you measure something that has no constant relations? Also, what kind of impact has free will to economical models?

This study chooses the path less travelled: an Austrian approach. The Austrian School was founded in the 1870's and 1880's. There are several historical reasons why the Austrian economics have not been widely known in the mainstream so far. Contrary to the popular trend at the time it gave more emphasis on the methodological and epistemological questions than other economists who favoured empirical positivist approach. This set Austrians apart from the main stream together with the fact that they continued to write fundamental treatises instead of focusing on narrow mathematical questions. No less important issue is the fact that Austrians stress the individual and her choices that have not been very popular themes in the 20th century. Nevertheless today Austrians are able to provide a systematic treatise of economics, which is something that the mainstream schools of economic thought cannot do. And without an overview and systematic approach it is very difficult if not impossible to raise fundamental questions and reconsider assumptions. (Rothbard 1997, 200-201)

Helsinki School of Economics has only two volumes of Ludwig von Mises books in its old collection. It has none from Murray N. Rothbard. Mises once said that "[e]conomics deals with society's fundamental problems; it concerns everyone and belongs to all. It is the main and proper study of every citizen." Mises' student F. A. Hayek won Nobel Prize for Misesian business cycle theory. This introduction seems to be relevant due to lack of proof that the Austrian approach is sufficiently well known in Finland[2]. This is

[2] Visit http:/www.mises.org/ for more information

also why the current study assumes as known less about the methodology and the Misesian theory than would otherwise be justifiable. The following approach is strictly speaking based on the Misesian paradigm[3] of praxeology that is developed further by Mises' student, Murray N. Rothbard, who became the main Austrian theorist after his death.

1.4 The Structure of the Study

The next section (GROWTH COMPANIES) introduces growth companies and their early stage private sector investors. The following section (GOVERNMENT CONTROLLED INNOVATION SYSTEM) gives an overview to the Finnish early stage market mainly from the government's perspective. It demonstrates the current market situation and illustrates some methods and means how the government carries out its market intervention. The section also presents justifications for the governmental actions in the light of the mainstream theories and belief systems. Finally it tries to give some evidence that the current state of the affairs is neither theoretically nor based on the actual performance without its own contradictions, even within the traditionally accepted framework. The purpose of these two sections is not to build a theoretical framework but to provide contrast and overview for the existing situation in relation to the following section.

The PRAXEOLOGY -section provides the deductive proof starting from the very first foundations and axiom(s) and gradually building and developing the logical system that will address the research problem and the research objectives. At the same time it argues and provides the reasoning why some of the mainstream theoretical methods and tools are not valid and cannot be used in economic science. The last two sections summarise the logical system and conclude the Austrian approach findings for the study area, respectively.

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[3] For more see Hans-Hermann Hoppe, *Praxeology and Economic Science* (Auburn, Ala.: Ludwig von Mises Institute, 1988); Hoppe, A *Theory of Socialism and Capitalism: Economics, Politics, and Ethics* (Boston: Kluwer, 1988); Hoppe, *The Economics and Ethics of Private Properly* (Boston: Kluwer, 1993); Joseph T. Salerno, "Postscript: Why Socialist Economy is 'Impossible,'" in Ludwig von Mises, *Economic Calculation in the Socialist Commonwealth* (1920; Auburn, Ala.: Ludwig von Mises Institute, 1990), pp.51—71; Salerno, "Ludwig von Mises as Social Rationalist," *Review of Austrian Economics 4* (1990): 26—54; Salerno, "Commentary: The Concept of Coordination in Austrian Macroeconomics," in *Austrian Economics,* Richard Ebeling, ed. (Hillsdale, Mich.: Hillsdale College Press, 1991), pp. 325-43; Barry Smith, "Austrian Economics and Austrian Philosophy," *Austrian Economics: Historical and Philosophical Background,* W. Grassi and Barry Smith, eds. (New York: New York University Press, 1986), pp. 1—36; and Gordon, *Philosophical Origins of Austrian Economics.*

2 GROWTH COMPANIES

2.1 SME sector

Finnish companies have on average six employees, which is statistically in the same level as the other EU-15 member states. However, the amount of entrepreneur-driven companies without any employees is among the highest in EU. In comparison to international statistics only a very few Finnish companies grow to middle or to large-sized enterprises. It is evident that growth ambitions are not in very high level among entrepreneurs in the private sector. Statistics Finland defines[4] an enterprise small when it has less than 50 employees and as a middle-sized company when it has less than 250 employees and revenues below 40 million euros or balance sheet total below 27 million euros. Almost all companies (99,7%) belonged to the SME category in 2001. Still it is usually a very small minority of SMEs that provide almost half of the new employment opportunities in the sector, and a significant part of the new productive growth and wealth. There seems to be supporting research that younger companies grow faster than older ones but often the growth becomes a factor only when the company has over 10 employees. Naturally it is also easier to double the revenue and employee figures when the basic starting point is low—large enterprises seldom can achieve relatively high annual organic growth in consequent years. (Brunila et al 2004; Kiljunen 2003; Storey 1994)

Large private corporations employed some 40 per cent of private sector's work force in 2004. There were only 564 such companies out of the total of 232 300 enterprises in Finland. Table 1 demonstrates the relatively large significance of growth companies that have between 10 and 250 employees. Their combined annual revenues consist almost one third of the private sector's total earnings (Table 1). (MOL 2006)

[4] In accordance with Recommendation 2003/361/EC

Employees	Number of Companies	Number of Employees	Revenues, Billion euros
Less than 2	151.496	94.000	15,7
2-9	64.719	228.600	35,1
10-49	13.231	256.300	46,9
50-249	2.295	230.900	57,2
>249	564	502.500	143,0
TOTAL	**232.305**	**1.312.200**	**300,0**

Table 1 Companies by amount of employees in 2004 (MOL 2006)

2.2 High Tech Growth Companies

There are many ways to define a growth company but there can be found several common nominators that often are recognised in the early stage ventures. Typically these type of companies have the potential and capabilities to grow significantly—in many cases due to new innovations or technological solutions. They transform themselves from one operational and organisational stage to another and grow from micro- to small- or middle-sized organisation in a matter of few years. Barringer et al (2005) define a rapid growth company by its 3-year compound annual sales growth of 80 per cent or more. Growth companies tend to need external resources in order to achieve their growth targets. Their existing capabilities and competences become outdated and inadequate together with the pace of the organisational and revenue growth. High uncertainty and rapid changes in the business model and operations tend to characterise high-risk ventures. They are volatile and experience more or less various levels of crises or transformational challenges during the development of the business case. Almost continuous need for additional resources, recruitment and managerial skills together with customer and competition challenges are part of the internal components of growth ventures' everyday life. In summary it can be stated that the exact definition is not so important but the fact that early stage growth companies transform and grow very rapidly in terms of employees, organizational stages, and revenues. (Rasila 2004; Ala-Mutka 2005)

2.3 Entrepreneurial Motivation

Personal motivation and characteristics are key qualities for owners that decide to choose the rapid growth path. People who prefer high financial rewards and

independence seem to expect high economical growth. "Out-of-control" growth pace is considered as a hindering factor that limits business expansion intentions among some entrepreneurs. Cliff (1998) has also found limited evidence that women are more inclined to slower growth path and to set their growth targets lower than men. Personal domestic situation, health and lifestyle choices affect the entrepreneurial selection process for high growth companies. Younger owners tend to take more entrepreneurial risk and grow their companies faster (Storey 1994). Growth requires capabilities and potential for expansion. Market growth and competition situation are factors that set the opportunities in perspective. Fear of losing control and higher risk due to regulations and other external requirements, for example because of employee protection legislation (Michelsen 2005), limit the growth factors. Similarly lack of financial gains and rewards reduce the motivation and willingness for growth. It can be summarised that entrepreneurs evaluate the high growth option based on a complex nexus of personal experience, competences, capabilities, domestic and personal situation in addition to external factors such as competition, market, regulatory environment and policies among others. There is no clear single-pointed evidence that growth companies are founded and developed only based on a few common factors or components either in external circumstances or personal qualifications and preferences. (Davidsson 1989; Standworth et al 1976)

2.4 Stages of Growth

Early stage venture development phases can be defined based on their financial needs as pre-seed, seed stage, start-up, and growth stage. The pre-seed stage is the first formulation and development of the company from an idea onwards. At this phase the founders are the main drivers and also the providers for the required resources. Seed stage formalises the company structure and may need additional resources in addition to founders' contributions. At this stage business angels and other financial injections such as grants and subsidised loans are potential sources of funding. Start-up and especially the growth stage are rapid growth phases where the company needs almost continuously more resources and competences. In the traditional S-curve theory this phase is the high demand period when the company has already proven its initial market success and needs to rapidly adjust to growing demand requirements (Stanworth et al 1976). At these stages Venture Capital (VC) investments are often considered in order to fulfil the

extra capital requirements for the business growth. In the earlier stages the founders tend to rely on their own resources (i.e. financial and other assets) together with friends and family types of support. The perceived risk level of a venture decreases the further the company develops along the stages, and therefore the options for additional resources in labour, tangible and intangible assets, and financial funding increase together with wider variety of available choices. The first stages can be characterised as highly uncertain and volatile with limited possibilities for external support and means to growth the venture.

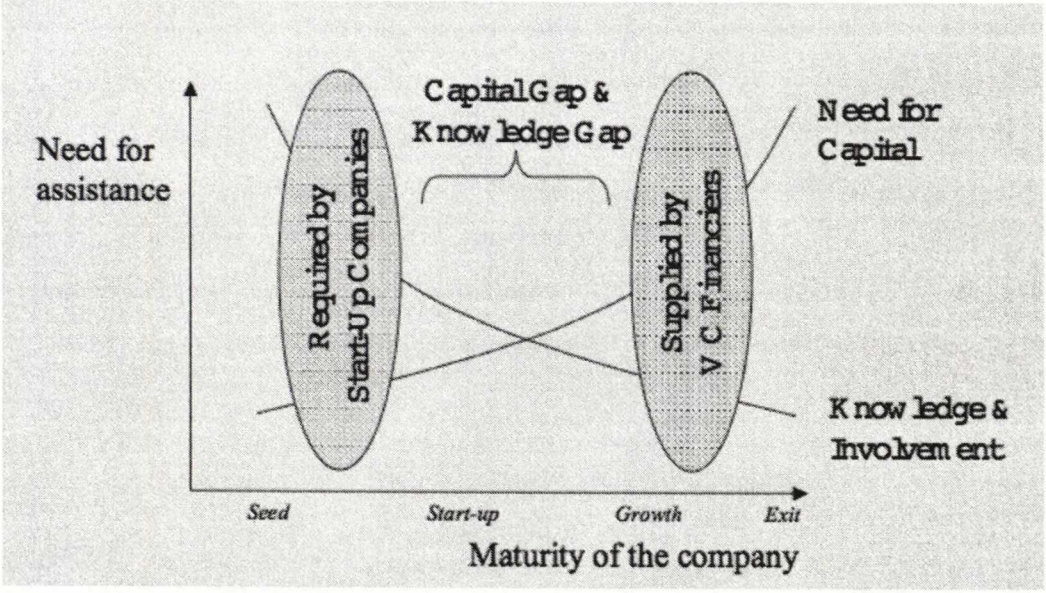

Figure 2 Competence and equity gaps (Rasila et al 2002)

The mismatch between entrepreneurs' need for relative modest amounts of high risk financial resources in the very early stages and the preference of institutional investors/financiers larger capital investments with a reduced risk can be called equity cap (or financial gap, capital gap, funding gap). In a similar manner the early stage ventures face competence gap when they have a high need for business skills and expertise but lack the means for acquiring them in the very early stages. These two gaps (Figure 2) are the main challenges every growth venture needs to solve in order to grow the business successfully and beyond the micro- and small-sized enterprise stages. (Rasila 2004; Riding 1988)

2.5 Private Investors

Private sector investors for early stage companies mainly consist of institutional investors and business angels.

2.5.1 Business Angels

Private individuals who invest directly in unlisted companies without family connections in the target companies are called business angels. They bridge the gap between institutional investors and the initial funding sources from the founders, family and friends (the 3 "F"s). Typical investment sizes are relatively small from fifty to a few hundred thousand euros. Business angels are directly involved with the target companies and therefore bare the risks of the deals themselves. Their active involvement is often desired by entrepreneurs who lack the vital business and management skills. Institutional investors are not interested of very small investment sizes due to high transaction costs combined with high-perceived risk levels. (Mason et al 2000)

In Lumme's (1998) study of Finnish business angels their main source of active investment wealth has in the majority of the cases originated from an entrepreneurial activity. This is explained by the fact that "... a significant amount of capital is required in order to make investments in small companies, and the high income tax rates in Finland make it extremely difficult to become rich by working for others (Lumme et al 1998, 30)." Most of Finnish angels are located in Helsinki metropolitan area and have on average more than 15 years of entrepreneurial experience. Finnish business angels are well-educated and tend to describe themselves as management generalists with considerable background in senior management positions. Lumme notes that her findings are in line with other studies of business angels in US and Europe. Business angles are rather invisible class of investors that are not very recognisable due to lack of formal organisational structures. This may lead to consider that there are lacks or gaps in the early stage funding market by the institutional investors and other market participants including the government (Riding 1988, 28).

The size of the informal angel investment market has often been neglected in statistics but there are some studies made that have tried to estimate the significance of the very early stage investment activity. For example Mason et al (2002) set the volume of business angel investments at par with the formal institutional investment level for start-up and early stage companies in the UK. Globally the overall market is totalling $56 billion annually conducting mere 700.000 transactions. There seems to be around 400 thousand active angel investors in the US that are willing to invest between $30 and $40 billion annually to 50.000 transactions. It has even been compared that the angel investment market is 30 to 40 times higher than the institutional early stage venture capital market. (Rasila 2004, 17)

Even if the aggregate numbers are hard to find and the variance is large the amount and number of early stage venture capitalist can be seen as an indicator of the total angel investment activity. After all many growth companies need additional funding after business angel investment rounds and therefore well functioning business angel market should also feed plenty of deals to the formal VC market. In Finland this may not seem to be the case. In the current decade there has been a chronic lack of early stage venture capital companies. Even with the most conservative estimates at least one new early stage venture capital fund with some €100 million committed investment capital would bring more competition to the current oligopolistic Finnish market.

2.5.2 Venture Capital

The first modern venture capital company, American Research and Development (ARD) was founded in the USA in 1946. Almost half of its profits during its 26-year lifespan came from its $70.000 investment to Digital Equipment Company (DEC) that grew in value to $355 million. The real growth in the sector started later only after favourable changes in the US legislation, and the venture capital investments rose from $460 million in 1979 to $3.94 billion in 1987 from 225 to 658 venture capital companies respectively. The largest growth in the sector happened in the 1990's. (Brouwer et al 1998; Lerner 2002)

Only 18 Finnish venture capital companies operated with a total capital of 100 million euros in 1988. Towards the end of the 90's the total available investment capital had

tripled to 300 million euros with some 50 venture capital companies in the market (Ahlbäck 2005, 18-19). Since the peak of the ICT boom the amount of management companies has declined but the amount of total capital has increased. In 2005 116 funds totalled 3.407 million euros under management by 42 venture capital companies in Finland. The funds were invested into 247 target companies, which is approximately 50 companies less than in the peak year of 2000. These figures include all equity investments by the venture capital companies and are not purely for the early stage companies. Table 2 demonstrates the share of the early stage investments in respect to the total invested capital. Large proportions of all committed funds are distributed to later stage deals and management buyouts (MBO/MBI) in Finland[5], which is in line with the European approach that does not favour early stage deals (Brouwer et al 1998, 338). In 2005 the seed and start-up stages received €18m initial investments shared between 46 target companies resulting the average deal size of 390.000 euros. (FVCA 2006)

	Initial Investments		Follow-on Investments		Total Investments	
	M€	Nbr	M€	Nbr	M€	Nbr
Seed	9	33	14	42	23	75
Start-up	9	13	12	58	17	71
Other Early Stage	16	19	31	68	47	87
Expansion	40	39	37	83	77	122
MBO/MBI	115	45	9	5	125	50
Secondary Financing	8	3	4	4	12	7
Other (incl. Rescue/ Turnaround)	3	2	10	9	13	11
Total	196	154	117	269	313	423

Table 2 Venture capital investments by stages in 2005 (FVCA 2006, 37)

Investors for the venture funds consist of various players including pension funds, insurance companies, banks, corporate investors, funds of funds, private individuals, academic institutions, public sector, and capital markets. Finnish Industry Investment Ltd (FII) as a government institution has published its direct investments to other funds. This gives some visibility for the structure of private venture capital funds in Finland. Table 3 lists its investments for the last two years totalling almost 200 million euros. In a few of the target funds FII has proportionally very large share of the total fund size.

[5] In US the term venture capital is considered to mean only early stage investments and the term private equity is used for buyouts and larger transaction. In Finland venture capital is considered to include both the meanings.

These funds are often targeted for seed and start-up stage companies as first private equity investments.

Year	Fund	FII's inv., million euros	Total Fund Size, million euros	FII % of total
2006	Conor Technology Fund I Ky	8,0	16,0	50%
	Eqvitec Technology Fund III K/S	10,0	140,9	7%
	Capman Life Science IV Fund L.P.	10,0	46,1	22%
	Midinvest Fund II Ky	15,0	58,6	26%
	EQT V (No. 1) Limited Partnership	7,0	2 866,8	0%
2007	Creandum II L.P.	5,0	48,3	10%
	CapMan Technology Fund 2007 L.P.	10,0	81,5	12%
	MB Equity Fund IV	10,0	242,0	4%
	Sentica Terveysteknologia I Ky	10,0	21,0	48%
	Sponsor Fund III Ky	10,0	175,0	6%
	Suomi Välirahoitusrahasto I Ky	10,0	22,7	44%
	Inveni Life Sciences Fund I Ky	10,0	20,7	48%
	Teknoventure Rahasto III Ky	7,5	15,0	50%
	Profita Fund III Ky	15,0	54,2	28%
	Intera Fund I Ky	10,0	125,0	8%
	Power Fund II Ky	15,0	62,8	24%
	Suomi Yritysjärjestelyrahasto I Ky	10,0	50,6	20%
	Nexit Infocom II L.P.	15,0	50,0	30%
2008	Inventure Fund Ky	8,9	35,4	25%

Table 3 Finnish Industry Investment's direct investments to private funds in 2006-2008 (Source: FII website)

FII makes also direct investments to the early stage growth company sector. In the last few years it has been an active co-investor (i.e. syndicate partner) who has matched a private investor's investment with an equal investment amount enabling a larger total deal size or reducing the needed capital from private investors. FII has made almost 80 direct investments to the early stage market. The rationale has been to reduce the risk for private parties and to make it possible to have more deal flow for the Finnish early stage segment. Considered that the syndication option is used mainly in the seed and start-up stage deals, which are relatively small in size (a few hundred thousands), it is not possible to avoid situations where FII is investing to Finnish early stage growth companies in two ways: it has a stake in the private VC fund but it is also a direct investment partner in the growth companies. This investment strategy makes it possible for the governmental agency to influence the early stage growth company sector in a very practical manner. As a large institutional investor of small funds (and small management companies) FII's relative influence for their investment decisions is not negligible even if it were not actively participating in the investment process. Secondly,

FII as a direct investor is eligible for board memberships in the target companies. Considering these two factors together it cannot be ruled out that the government is actively influencing and impacting the direction of the early stage growth company market. This FII "multiple hat" strategy can be evaluated and theoretically analysed by the principal-agent theory that is briefly introduced in the following section.

The administration of venture capital funds is operated by a management company that is responsible of selection, investment process, management, monitoring and finally exiting of the target companies. Often used fund and management company structure is shown in the Figure 3. The management company charges an annual management fee that is in the range of 1-2 per cent of the total committed funds and a success fee of 20 per cent above the mutually agreed performance level. The diagram illustrates the role of the investment council that is the highest decision-making body representing and monitoring the interest of the fund investors (limited partners). The management company recommends and handles the day-to-day operations but the final authority regarding investments, divestments, and other important fund management decision are made by the council. (FVCA 2006, Rasila 2004)

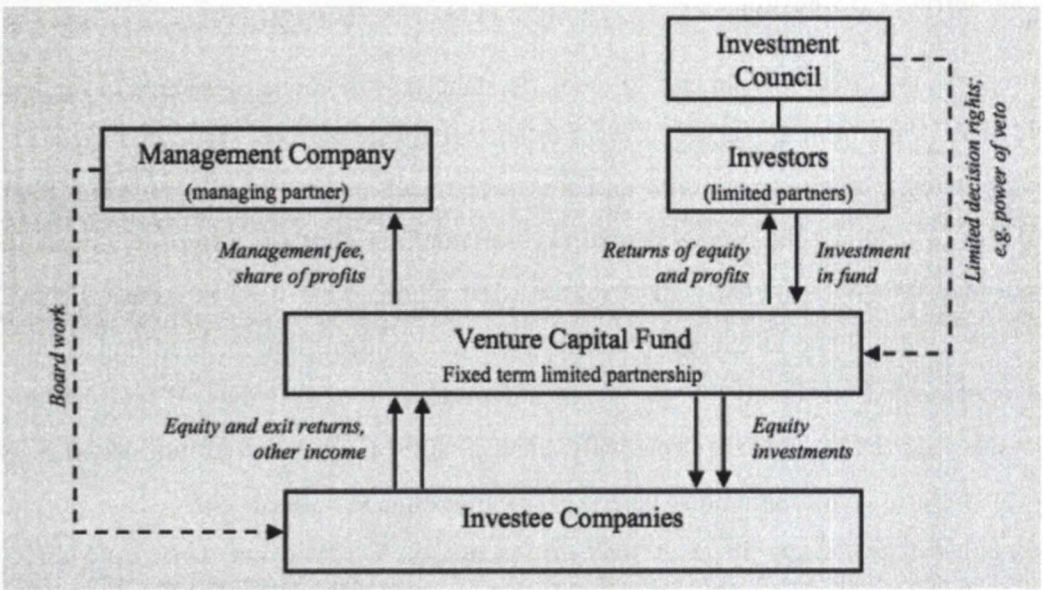

Figure 3 Limited partnership venture capital fund model (Rasila 2004, 23)

3 GOVERNMENT CONTROLLED INNOVATION SYSTEM

3.1 Finnish Innovation System

> *"There is a need to develop a broad-based, holistic innovation system that goes beyond traditional industrial and technology policy. A successful innovation system must not only include science, educational and technology policy, but also varying policy-fields as competition and enterprise policy, environmental policy and labour policy, among others. In order to manage such policies cross-sectoral policy guidelines covering the entire innovation system have to be developed. (Ahlbäck 2005, 22)"*

The Science and Technology Policy Council (STPC) creates every three years a report that defines the guidelines for the Finnish innovation policy. The most recent report was published in 2006. The report states that the policies can be considered successful if "...they contribute to the *development of the whole society* and the innovation system in the *intended manner* [all emphasis added]." Later in the report it is stated that "[i]n the area of content development, it is crucial *to promote measures* implementing the national strategy. The strong sectors of the Finnish economy – the forest industry, the metal industry, and ICT – *must retain their position.* New areas of focus *must be created* alongside them from a group of promising branches, *including at least* biotechnology, new materials, software, knowledge-intensive services, *the entire well-being cluster* [all emphasis added], and the most recent area: nanotechnology. New initiatives connected to culture and leisure time are likewise important. Generally speaking, it is a question of a need to understand the entire service sector, such as industry, as a core part of the economy, determining the well-being of citizens." (STPC 2006)

STPC is chaired by Prime Minister and the council have as other members the Minister of Education and Science, the Minister of Trade and Industry, the Minister of Finance and four other ministers in addition to ten other members including representatives from the Academy of Finland, the Finnish Funding Agency for Technology and Innovation, the universities, business and industry, and employees. Since the government appoints

the non-ministerial members for the term of the Parliament it is completely a politically nominated body. The central control mechanism becomes evident thanks to the high caliber profile of the participants and hence industrial, education, environmental, regional, labour market, economic, fiscal, energy, health, and welfare policies are coordinated with the STI policy (Berghäll 2003, 4-5). These policies influence and affect the direction of the society. For example monetary polices have effects on the levels of demand and interest rates, education policies causes changes in the supply of skills, environmental, health, and safety policies affect whether and how companies can innovate and operate (Georgihou et al 2003, 11). (STPC 2006)

An extensive governmental decision-making and policy chart including the implementation organisations for the Finnish innovation system is presented in Appendix A. Figure 4 shows the main public institutions relevant for the growth company sector (mainly Sitra, Tekes, Finnvera, FII, Finpro, and TE-Centers).

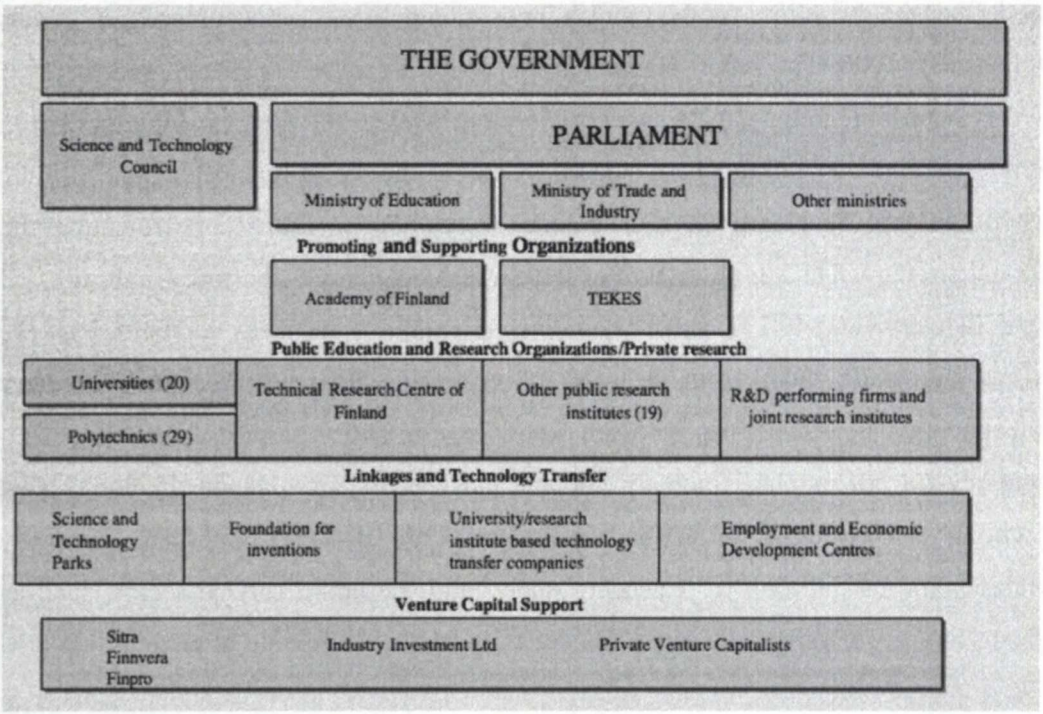

Figure 4 Finnish Governmental Innovation System (Berghäll et al 2003, 3)

Almost 80 per cent of government R&D funding is controlled by the Ministry of Education and the Science and Ministry of Trade and Industry (Berghäll 2003, 7-8). The latter is responsible for the technology policy and the support for private R&D together

with administering the Finnish Funding Agency for Technology and Innovation (TEKES) that distributes approximately 30 per cent of the total public research budget. In 2007 TEKES funded out of its €469m budget 57 per cent (€161m) for SME R&D projects while it supported academic institutions with €185 million. (TEKES 2007; Ahlbäck 2005)

Below is presented samples of the Finnish legislation that defines roles and objectives for Tekes and FII:

- The Act on the National Technology Agency 429/1993, section 2, defines the objective for Tekes: "to promote *the societal welfare* [emphasis added] and stable development by improving directly or indirectly the technological evolution and competence of industry to enhance its ability to develop internationally competitive products, processes and services. (Authors' translation)" (Hyytinen et al, 11)

- The Decision of the Council of State (2000) sets general guidelines for Finnish Industrial Investment's investment activities. Section 1 states that "Investments are directed to targets, where *the market does not channel sufficient funds*...
  [4] promote *structural change in the economy* by direct investments in line with the aims of economic policies;
  [5] promote the functioning of the venture capital market aiming at a *more developed market* [all emphasis added]; (Authors' translation)" (Hyytinen et al, 16)

The examples indicate that there are some fundamental reasons to believe that the Finnish market is not working properly and that there are some commonly accepted values and principles in which these statements in the Finnish legislation are based and derive their justifications from.

3.2 Justifications for the Governmental Innovation System

The Finnish governmental innovation system considers the flow of information and knowledge between academia & research institutions and enterprises as the mechanism for new innovations and economical growth (Ahlbäck 2005, 1). The system has been

designed to provide support for entrepreneurs from the initial idea to the commercialisation of an innovative product (Berghäll 2003, 24). In practise the innovation network consists of many different organisations with their own procedures and programmes that are not very user friendly or even easily accessible by entrepreneurs (VICTA 2007).

Finnish Ministry of Trade and Industry adapted cluster concept from Michael Porter's (1990) diamond model as a basis for its industrial strategy. In the model government is considered to act as a catalyst or challenger encouraging companies to increase their performance levels and even to stimulate early demand for their advanced products. Later it has been found out that the results have not been completely successful with the implemented strategy (Berghäll 2003, 4).

Schumpeter's creative destruction theory (1934) emphasises the role of entrepreneurs as unique players that innovatively restructure and allocate resources in the society. Growth companies provide new productivity and innovations that transform and increase the wealth in society. The creative destruction sets economy in imbalance by replacing old innovations in the market and provides temporary monopolistic rents (profits) and fast growth for the innovator. He notes that well-functioning financial markets support the technology development and therefore are beneficial for the society. Schumpeter also refers to horizontal (e.g. Romer 1990) and vertical competition (e.g. Aghion et all 1992) the previous being for example new product innovations that create dynamic growth in the economy and the latter product improvements that can be based on product replacements or quality improvements.

Levine (1997) considers along the lines of Schumpeter that the development of financial markets and economic growth are interlinked. He argues that the level of financial development is a good predictor of future rate of economic growth, technology change, and capital accumulation. Well functioning financial market reduces information and transaction costs affecting investment decisions, technology innovation, savings and long-run growth rates. King et al (1993) have found cross-country empirical evidence to back Levine and Schumpeter's views. On the other hand Lucas (1996) and Arestis et al (1997) regard the link between financial markets and the economic growth as overemphasised. Their view has not been lately supported as widely as Levine's. Still

Levine admits that technological and social changes impact financial markets and the long-term economical growth cannot be explained satisfyingly with the current models (Levine 1997, 720-721).

Wennekers et al (1999) consider that government should influence the economical growth[6] via its legal and political influence on the market. For example, it can change taxation and incentive structures, competition laws, labour union regulations and laws concerning bankruptcies as ways to support and encourage entrepreneurial productivity. Paasivirta et al (2004) have similar views and they consider Finnish taxation as an example that reduces the productivity and new innovations. Keuschnigg et al (2002) show in their research that progressive income taxation retards entrepreneurship and the expansion of innovative industries. On the other hand output and investment subsidies stimulate start-up activity. They also point out that the information asymmetries between the entrepreneurs and investors are factors that reduce investment activity due to moral hazards and rising agency costs. Still, they don't consider government being in any favourable position since it is bound by the same informational problems, and therefore cannot improve the market allocation with taxes or subsidies.

3.2.1 Market Failures

Finnish policy organisations widely use market failures as justifications for market intervention (Hyytinen et al 2002). If a Pareto-efficient allocation of resources is not achieved market is considered to fail from its optimal level. The assumptions for the theory are roughly the same as for the perfect competition concept: perfect information, homogenous goods within a market, price taking (no market power by any player), no externalities or transaction costs, free entry and exit into the market, and perfect divisibility of the output. Since these premises are not very accurate description of real markets this is considered by the policy-makers as an invitation to fix the perceived problems. Common problems that are applicable to growth companies include negative spillovers (e.g. poorly designed IPR laws); information, observation, and enforcement costs (i.e. finding business partners, verification costs for the object of sale, and finally legal costs for enforcing contracts respectively); and finally the often-referred failure of financial markets to allocate efficiently funding to R&D investments. These combined

[6] Usually measured by GDP growth.

together reduces the overall R&D activity in society and therefore decreases the total high social surplus provided by the R&D innovations: this is widely regarded as socially sufficient justification for governmental R&D intervention (Hall 2002; Jaffe 1989; Arrow 1962). (Georgihou et al 2003)

Nelson (1959) and Arrow (1962) introduced the concept of 'knowledge as a public good', which says that private companies systematically "underinvest" in basic research causing a "market failure." They concluded that companies invest less than the socially optimal level due to a "free driver" problem (Dasgupta et al 490-491). Even though it is not clearly demonstrated in later research how the socially optimal or underinvestment level should be measured the original concept and justification for the intervention still remains. However, the later scientific literature tends to refer more to general welfare economics as justification than to actual empirical evidences. Schibany et al (1999) noted that R&D is only one factor in the technological change in society and hence reducing science purely into a mechanical machine of producing new information is an oversimplification. Griliches (1958) inspired an extensive scientific literature that has found large returns on public R&D investments as show in Table 4(Griliches (1991). These studies tend to rely on large databases with aggregated data when measuring social rates of return to research. "To summarise, virtually all econometric studies about the impact of research on productivity and growth have suggested positive and indeed impressively large rates of return. However, such attempts have been plagued by errors of measurement and errors of conception. The latter come mainly from weaknesses in theory as to how the R&D of one side and the economic and social aspects on the other are related." (Schibany et al 1999)

Author (year)	Estimated rates of return	
	Private	Social
Nadiri (1993)	20-30	50
Mansfield (1977)	25	56
Terleckyj (1974)	29	48-78
Sveikauskas (1981)	10-25	50
Goto-Suzuki (1989)	26	80
Bernstein-Nadiri (1988)	9-27	10-160
Scherer (1982, 1984)	29-43	64-147
Bernstein-Nadiri (1991)	14-28	20-110

Source: Table adapted from Griliches (1992) and Nadiri (1993)

Table 4 Private and Social Rates of Returns to R&D (Schibany et al 1999, 8)

In efficiently working financial markets high risk ventures will find funding that correlates to their risk level—the cost is higher than for lower risk level investments but at least the funding is available. In imperfect markets the funding gap, where early stage ventures do not find sufficient financing, is considered to result partly from asymmetric information problems between the sellers and buyers. Akerlof (1970) introduced the adverse selection problem with an example of a car seller offering "lemons" to the buyer since the seller knows more about the defects in used cars than the buyer and can hide the quality problems in the merchandise. Leyland and Pyle (1977) showed that the financial markets have their "lemons" and this causes good investments to suffer from higher costs and the effects of the bad investment projects in the same market. Spence (1973) showed that signalling enables to provide assurances for the investor of the non-lemon nature of the offered investment. For example investors may rate a prospective venture higher when the entrepreneur has high personal financial stakes at risk in contrast to other ventures with modest risks taken by the entrepreneurs. Especially the latter case demonstrates the moral hazard (Arrow 1971) where the entrepreneur may act more irresponsibly or carelessly at the expense of the investor than he would without any asymmetric information affects in respect to the less informed investor (Jensen et al 1976). This principal-agent problem has been widely researched and applied to many relationships including ownership and management, governmental organisations, and financial market issues. Jensen and Mecklin (1976) divided the agency costs to bonding expenditures, monitoring expenditures, and the residual loses. For example the legal system and regulations (e.g. financial market and bankruptcy legislation, contractual

and company law) affect the level of agency costs together with the negotiation and contractual skills between the market participants.

3.2.2 Governmental Remedies for Market Failures

Every third SME has received some governmental support in Finland (Hyytinen et al 2002). For example over 20 per cent of all SMEs that use external financing have received Finnvera's governmental loans or loan guarantees (Brunila et al 2004). Figure 5 shows the different instruments and services offered by governmental organisations distinguished by growth company development stages. The picture illustrates well the gaps in the government's portfolio. TEKES is clearly the main source of funding for early stage companies with its grants and loans when the technology product development has a high priority in companies' agenda. The problem with TEKES funding is that the companies receive the subsidies mainly after the costs have occurred. This means that growth companies need to have the working capital reserves to bridge the negative cash flow effect. The figure also shows the difficulty for Finnish companies to gain market traction after the initial R&D phase. Governmental instruments favour mainly only R&D efforts but leave very little support options for business development activities.

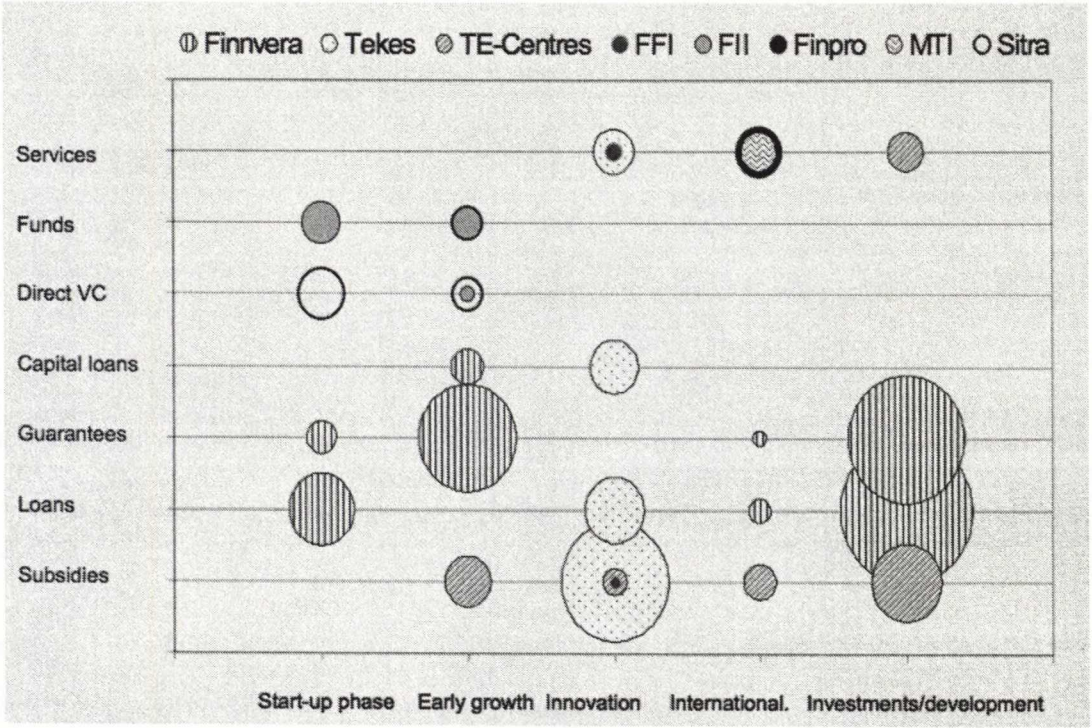

Figure 5 Services and amount of finance per company development stage. (Georghiou 2003, 87)

The dominant role of the government in the very early stage financing becomes obvious (see Figure 6) when considered the amount of seed investments made by the private sector: only less than 15 per cent of the total invested capital was funded by private investors[7]. Lack of business skills and entrepreneurial competences to attract required resources for the growth from the private sector are mentioned as reasons for the results. In addition to these asymmetric information problems it is noted that Finnish venture capital market is not as well developed as elsewhere in EU. Existing venture capital companies are relatively new comers to the market and their personnel have often more background from banking and finance than entrepreneurial activities. Also the Finnish regulations for foreign capital investments into VC funds limit the attractiveness of the fund vehicles together with the high volatility and low liquidity of the national public stock market, which reduces the possibilities for lucrative local market IPOs. All these factors are more or less acknowledged by the public sector and the government has introduced its own solutions for the issues—mainly favouring heavy intervention and competing with the private sector. (Brunila et al 2004, Ryynänen 2004)

[7] Most likely business angel investments are not included due to statistical difficulties.

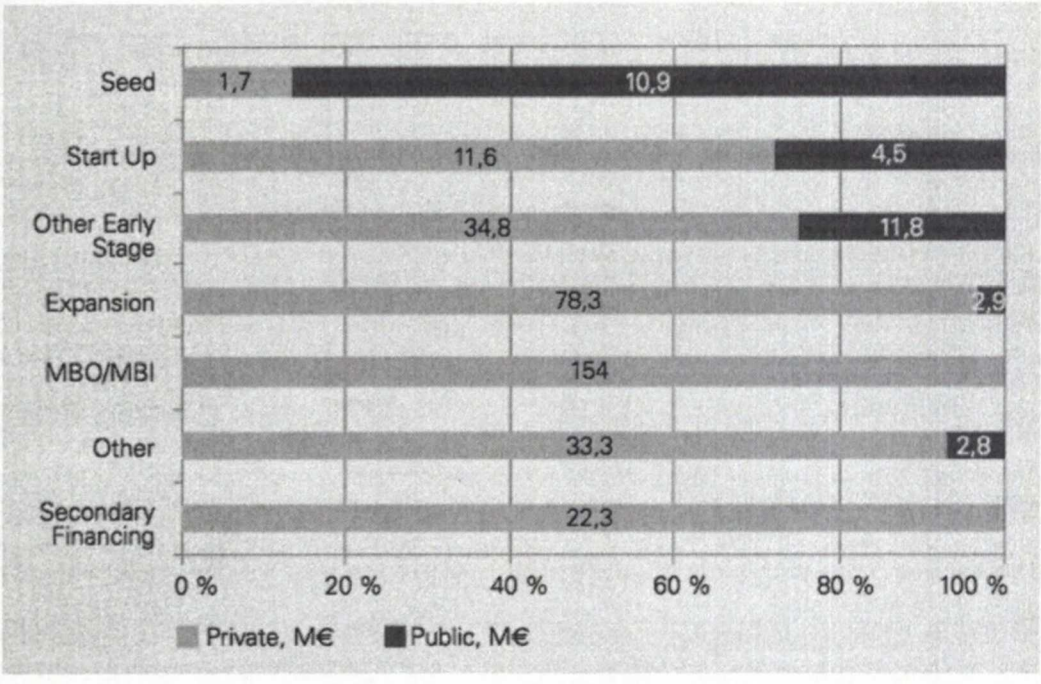

Figure 6 Private and Public Equity Investments in 2004 (FVCA 2005, 39)

Government's role as controller, regulator and service provider creates its own problems and challenges. Appendix A demonstrates the different decision-making, funding, and control relationships in respect to implementation agencies. Growth companies are not isolated from the rest of the society and therefore their matters are affected by multiple ministries, policies, and governmental agencies. Overlap and inefficiencies are obvious results even if it is assumed that the level of coordination between various public bodies and institutions is well organised. Venetoklis (2000) studied the relevance of government subsidies to Finnish SME companies using approximately 36.000 cases as the research material. He questions the value added (or surplus) of the subsidies when the total amount of expenditure is taken into consideration.

Lerner (1999; also Stigler 1971; Becker 1983) notes that politicians or the interest groups may affect the governmental involvement by their own desire to maximise private benefits. Blackburn and Hung (1999; also Holz-Eakin 2002) do not consider that government is in any better position than the private sector when faced with information asymmetries— still it can influence innovations by its fiscal and tax policies as well as by deregulating the market. This view is supported by Gans and Stern (2000) who

found that government subsidised R&D investment performances are higher in segments with higher rates of private venture capital investments. Keuschnigg and Nielsen's (2001; 2004; also de Meza 2002) findings do not support the welfare-based justifications for stimulating venture capital activity and start-up investments. They warn about possible governmental crowding-out affect in the growth company private support sector and also recommend lower capital gain tax rates as incentives for VC companies. Wennekers and Thurik (1999) regard the personal incentives and rewards as preferred ways to innovation and economical growth.

The perfect market assumption as justification for governmental intervention is not very realistic. Even if it is utilised as reasoning for intervention the government may not be in a position to have the optimal and perfect solutions and means for implementation. A market is defined as having interim efficiency (Holmström et al 2003) if the social planner cannot improve the market outcome when under the same asymmetric information constrains as the others. Using this criterion instead of the perfect market assumption the government has less justification for its interventions. However, the information's public good argument is still regarded as valid and government should absorb the sunk costs that private companies are not willing to bear for information acquisition thanks to spillover effects. The reasoning assumes that government can distribute the new knowledge across the society efficiently for everyone to benefit from it almost instantly. The principal-agent problem is the same with government employees as with any other employer in the market—still bureaucrats are assumed to perform at the socially optimal level unlike the rest of the principal-agent relationships. (Georgihou et al 2003)

3.3 Competitive but not so Productive

Finland was in the top of many rankings and charts in the late 1990's and early 2000. European Innovation Scoreboard (EIS) ranked Finland as the leading innovation system in the EU. European Lisbon Summit 2000 requested to set-up a tracking and monitoring system for the development and trends in the member states innovation policies. Out of the 28 indicators Finland scored first in six and among top three in most of the other categories. Interestingly the scoreboard mentions as one of the country's strengths its venture capital market and R&D support as well as patenting. The latter point shows

only good results thanks to large corporations such as Nokia that file the bulk of the new patent applications. Finnish SME sector lacks behind when innovations are measured by patent data (Berghäll et al 2003, 34). The scoreboard results show SMEs in-house innovations lacking noticeably behind the EU average as presented in Figure 7. What is more striking in the results is the very low score in the category of new capital raised. Low levels on in-house innovation and raised capital are certainly not very impressive performance records for the private sector. Maybe the spillover effects from public sector funded basic research are after all not diffusing to the early stage growth sector that should produce the new wealth and lead the creative destruction process in the society. (Ahlbäck 2005, 3)

Figure 7. European innovation scoreboard 2001, country results for Finland (EU=100)[22]

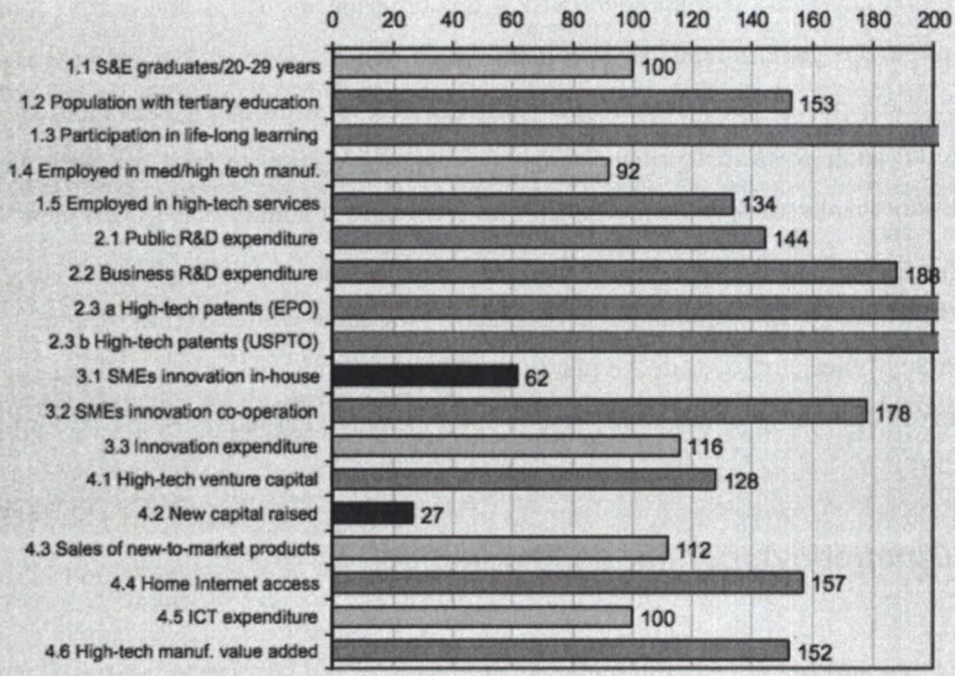

Figure 7 European Innovation Scoreboard results 2001, Finland (EU=100)[8]

World Economic Forum rated Finland in the top positions in competitiveness ranking in several years (Table 5). Finland surpassed the United States as the most competitive country in 2003. WEF ranking uses macroeconomic environment, public institutions,

[8] Source European Commission (2001): The European Innovation Scoreboard (Berghäll et al 2003)

and technology as factors in the rating. As criteria for public institutions it uses contracts, law, and corruption indexes for the score weighing.

	2004	2003	2002
Finland	1	1	2
USA	2	2	1
Sweden	3	3	5
Taiwan	4	5	3
Denmark	5	4	10
Norway	6	9	9
Singapore	7	6	4
Switzerland	8	7	6
Japan	9	11	13
Iceland	10	8	12
UK	11	15	11
Netherlands	12	12	15
Germany	13	13	14
Australia	14	10	7

Source: WEF The Global Competitiveness Report 2004-2005

Table 5 WEF Global Competitiveness Ranking

The overall microeconomical competitiveness has been good even though prevalence of foreign technology licensing ranked only in the 60th place, and the extent of locally based competitors in the 35th position. The macroeconomical position WEF report has valued overall to the 14th place but in this category there has been a few very low scores. For example among all the 80 countries in the survey Finland has been stated to have very severe regulatory obstacles to business (72nd position). Other very revealing items are value added tax rate (69th), flexibility of wage determination (78th), and 69th position in government expenditure. It is worthwhile to notice that most of the poor ratings were not in the performance levels but in the policy instruments. WEF comments that structural rigidities make the economical adjustment process harder resulting among other things higher unemployment than would be the case otherwise. The WEF survey is partly based on executive opinion surveys, which means that the results may not be entirely reliable. (Berghäll et al 2003, 26-27)

Finland has some characteristics from Asian countries such as India, Thailand, Korea, and Japan where high-tech manufacturing sectors are highly competitive but at the same time the non-tradable sectors are lagging behind, often being very inefficient due to

extensive regulatory and structural constrains. In the manufacturing sector Finland went ahead of US in labour productivity in the mid of 1990's but still at the end of the decade reached only 75 per cent of the overall labour productivity in the United States. The average low labour productivity together with low average working hours, rigid institutionalised wage bargaining, and a low rate of employment per population reduces the average standard of living in the country. (Berghäll et al 2003, 28)

4 PRAXEOLOGY

4.1 Epistemology

> *"To begin with, departing from the procedure usually followed, one must distinguish the methodological from the logical problem.*
>
> *As a rule, methodology is understood to be logic conceived as the theory of the methods of thought." (Mises 2003, 74)*

Epistemology is concerned with human knowledge and more specifically of its origin, scope, and the crucial question where does it come from. Rationalism has its basis on reason—our knowledge does not come through our sensory perception. It is derived from principals that pre-exist in the human mind. Empiricism on the other hand states that everything we know is revealed to us via observation and experience.

Immanuel Kant criticised the empirical approach, supported among others by David Hume, and noted that experience is only the raw material for the mind and there needs to be something already in place in order to process the observational data. Kant defined this as *a priori* knowledge in contrast to *a posteriori* knowledge that is derived from experience. A proposition is *analytic* when the means of formal logic is enough to verify it, and in an opposite case the proposition is *synthetic*. This leads to a question how can one verify a proposition that is not based on any observational information and not having sufficient knowledge of it beforehand (*synthetic a priori*)? (Kant 1781)

Kant stated that mathematics and geometry are examples of this category—they are truly *synthetic a priori*. He proved his claim by stating that these axioms are self-evident. This does not mean that the axioms are easy to find or to realise but only that they cannot be denied as self-evident without a self-contradiction: one needs to admit their truth implicitly while attempting to prove them wrong. *"Proving* means *making evident* something which is not evident. If a truth or proposition is self-evident, it is useless to attempt to prove it; to attempt to prove it would be to attempt to make evident something which is already evident (Toohey 1952, 60)."

Kant's postulate still requires inner reflection by the person and hence the self-evidence cannot be directly observed by others. Ludwig von Mises provided a solution by stating that these truths are not just inner workings of mind but the mind belongs to a man and his mental activities are grounded as categories of action by him. Humans act—is a true *synthetic a priori* axiom that cannot be denied without contradicting the self-evident claim by another action and thus implicitly admitting it. (Hoppe 1995, 8)

Praxeology, or the science of the logic of human mind, applied to the science of economics is based on deduction and according to Mises (1998, 32): "Its statements and propositions are not derived from experience. They are, like those of logic and mathematics, a priori. They are not subject to verification and falsification on the ground of experience and facts. They are both logically and temporally antecedent to any comprehension of historical facts. They are a necessary requirement of any intellectual grasp of historical events." Since praxeology is based on the fundamental, and true, axiom that individuals act it necessarily follows that all the propositions that can be deduced from this axiom must also be true (for example A being true and implying B, then B must also be true) (Rothbard 1997, 58-60). "What praxeology asserts with regard to human action in general is strictly valid without any exception for every action. There is action and there is the absence of action, but there is nothing in between (Mises 1962, 45)." Therefore the laws of economics science can only be formulated based on the apodictically known axioms out of which the other necessarily true laws will follow (Rothbard 1997, 25).

It is worthwhile to present some of the direct implications of the action axiom (for the entire deduced system of economics see Mises 1998). Action implies that it is purposeful; it is directed towards a goal and man uses means to reach his ends. By action he believes he can alter his present state and he has the knowledge to act so. Acting man uses exchange from one state of affairs to another state of affairs. This implies dissatisfaction for the current state of affairs as well as scarcity for the means. Action happens in time and since man is mortal time is scarce. Time is his means to reach his ends but the future is uncertain since if it were known he would not act. To reach the ends it is necessary to make choices, and in order to select between alternatives ranks of value are needed. Action is based on causal relationship between cause and effect—otherwise man could not act. "Let us note that praxeology does not

assume that a person's choice of values or goals is wise or proper or that he has chosen the technologically correct method of reaching them. All that praxeology asserts is that the individual actor adopts goals and believes, whether erroneously or correctly, that he can arrive at them by the employment of certain means (Rothbard 1997, 59)."

Rothbard also notes that according to Mises only the fundamental axiom of action is a priori and there are a small number of subsidiary axioms that are broadly speaking empirical but de facto self-evident. "We may consider them in decreasing order of their generality: (1) the most fundamental—variety of resources, both natural and human. From this follows directly the division of labour, the market, etc.; (2) less important, that *leisure is a consumer good.* These are actually the only postulates needed. Two other postulates simply introduce limiting subdivisions into the analysis. Thus, economics can deductively elaborate from the Fundamental Axiom and Postulates (1) and (2) (actually, only Postulate 1 is necessary) an analysis of Crusoe economics, of barter, and of a monetary economy. All these elaborated laws are absolutely true. They are only *applicable* in concrete cases, however, where the particular limiting conditions apply (Rothbard 1997, 67; 103)." Why all the praxeological laws are qualitative in nature Rothbard gives the following argument (1997, 16): "Since the fundamental and other axioms are qualitative by nature, it follows that the propositions deduced by the laws of logic from these axioms are also qualitative. The laws of human action are therefore qualitative, and, in fact, it should be clear that free will precludes quantitative laws."

Economic theorist cannot use controlled laboratory experiment like natural scientist. It is impossible to keep the relevant variables of the social world constant and therefore a mental experiment is used: theorist keeps them constant in his mind. "In short, economics arrives at *ceteris paribus* laws: *Given* the supply, the price will change in the same direction as demand; *given* the demand, price will change in the opposite direction from supply (Rothbard 1997, 35)."

In physics simple facts can be isolated in the laboratory. These isolated facts are known by keeping all the other but relevant factors constant, but the laws to explain them are not. At best hypothesis can be formulated and they can be validated by controlled experiments. However, even though the laws explain the facts consistently the laws of physics cannot be absolutely established, Heisenberg uncertainty principal been just one

example. This means that physical laws need to be postulated in a manner that they or their consequents can be empirically validated. Still, these laws are only tentative, never absolute—explanatory at best. "But in the study of human action, as Mises shows, the reverse is true; here, we begin by *knowing* the causal laws: by knowing the fact of human consciousness, of free will, of motivated, purposeful action of human beings in using given means for the attainment of desired ends." (Rothbard 1997, 25)

In human action there are only "historical" facts that cannot be isolated, neither verified nor falsified by any law. "The reason is obvious, as has been pointed out already. The historian can never derive theorems about cause and effect from the analysis of the material available. Historical experience is not laboratory experience. It is experience of complex phenomena, of the outcome of the joint operation of various forces (Mises 1962, 76)." Praxeology is in different position since it has complete knowledge of its original and basic axioms. The causal laws are known, unlike in natural sciences, and this is the starting point—human consciousness based with free will and animated with motivational and purposeful action using given means to reach its desired goals. This enables praxeology to use deduction successfully and form absolute laws that are valid as long as humans act and exist.

Often it is claimed that praxeology is not scientific since it uses logic mainly in verbal and not mathematical and symbolic procedures. In physics mathematical operational steps are in themselves meaningless for their sole purpose is to explain and predict given facts. In praxeology the axioms are meaningful, true, and known. Therefore each step of logical deduction is meaningful and the meanings are better communicated by words than in meaningless formal symbols. In addition translating economic analysis into mathematical symbols and then retranslating them back for conclusions does not add value and like Rothbard comments that it "...violates the great scientific principle of Occam's Razor that there should be no unnecessary multiplication of entities." (Rothbard 1997, 213-215)

4.2 Values and Utility

Man uses means to pursue his ends. These means are scarce and he needs to make choices. Only individuals act, either alone or in a group, and the action of choice always concerns only particular and specific means in question. This process of choice results

that he needs to value or prefer between different means. More urgent needs are satisfied before less urgent means. The scale of preferences can be called utility, welfare, satisfaction, happiness etc. The name is not important but the notion that there is an order of rank that is done only in acting and through acting. The choice is always between definite quantities or units that are valued subjectively dependent on the individual and the unique circumstances when the action takes place. Therefore each act of choice is different and has a unique subjective valuation. The value scale can be presented in a numerical format but these numbers are only ordinal, not cardinal. Ordinal numbers can only be ranked but they cannot be used for measurement. Therefore any comparison or measurement of change in welfare, happiness or value is not possible for any individual or group of people. For example, it is possible to say that getting financing increases the wellbeing of the company owners and its employees but it is not possible to tell "how much." In order to measure something one needs to have an objective unit of measurement. (Mises 1998, 119-123; Rothbard 2006, 17-21)

Traditional utility theory assumes the notion that mathematical "marginal" in differentials is equivalent to the "marginal" in marginal utility. In other words the total utility is the integral of series of "marginal utilities." This results that marginal utilities of goods can be differentiated and integrated among other arithmetical operations. This mathematical representation assumes and requires the notion of continuity (i.e. infinitely small steps). Rothbard disputes this by saying that "[h]uman action and the facts on which it is based must be in observable and discrete steps and not infinitely small ones. Representation of utility in the manner of the calculus is therefore illegitimate." "Marginal" does not refer to increments of utility but the utility of increments of goods which results that there is no measurability available whatsoever. (Rothbard 1997, 220-223)

Mises argues that the law of marginal utility does not refer to objective use-value but to subjective use-value. It is not concerned of a definite effect in general nor with the value of things but the value of the services a person expects to get from them (Mises 1998, 124-125).

Also he says that "[i]t is impossible to measure subjective use-value, it follows directly that it is impracticable to ascribe "quantity" to it. We may say, the value of this commodity is greater than the value of that; but it is not permissible for us to assert, this

commodity is worth *so much* (Mises 1980, 58)." For example, it does not make any sense to say that I prefer my Porsche thousand times to Mercedes. Similarly "[m]onetary calculation is not the calculation, and certainly not the measurement, of value. Its basis is the comparison of the more important and the less important. It is an ordering according to rank, an act of grading (Cuhel), and not an act of measuring. … economic calculation does not rest on the measurement of values, but on their arrangement in an order of rank (Mises 2003, 169)."

The valuation process comprises of the subject doing the valuation and the objects of valuation. The subject can be an individual, a group of persons or their representative, a society or an agent such as state but from the perspective of the valuation the subject acts as a unit. Likewise the objects of the valuation process can be a complex bundle of various goods but from the perspective of the valuation process there are only two goods to be compared over each other. This process is inseparable from the subject and the objects and therefore consists of a unique action in time. There is no continuity or constancy between one act of valuation over another. Also, there is no valid basis to assume a constant valuation preference carried over time without any changes in subjective preferences and thus in actions.

The same constancy assumption can be found in the Revealed Preference theory, first introduced by Paul A. Samuelson (1938), used in questionnaires where people are asked to make choices (i.e. reveal their preferences) between different options (or goods since a good is any object of action) without need to make the real choices in practice. The weakness here is not only that people may not tell the truth but the valuation process also differs when one actually makes the choices in reality. (Mises 1980, 59; Rothbard 1997, 216-218; Mises 1998, 102-104)

Rothbard concludes for us the latter discussion together with arguments about indifference by saying that "[i]ndifference can never be demonstrated by action. Quite the contrary. Every action necessarily signifies a *choice*, and every choice signifies a definite preference. Action specifically implies the *contrary* of indifference. The indifference concept is a particularly unfortunate example of the psychologizing[9] error.

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[9] Rothbard explains the term as follows (1997, 218): " …"psychologizing," the treatment of preference scales as if they existed as separate entities apart from real action. .. "Praxeology, the basis of economic theory, differs from psychology, however. Psychology analyzes the *how* and the *why* of people forming values. It treats the concrete content of ends and values. Economics,

Indifference classes are assumed to exist somewhere underlying and apart from action. This assumption is particularly exhibited in those discussions that try to "map" indifference curves empirically by the use of elaborate questionnaires.

If a person is really indifferent between two alternatives, then he cannot and will not choose between them. Indifference is therefore never relevant for action and cannot be demonstrated in action." (Rothbard 1997, 225-226)

Finally it is worth noting that like there is no such a thing as total utility, only relative and marginal, nor an actual choice can present any form of measurable utility—only an alternative being preferred over another (Rothbard 1997, 223; 220). Likewise there are no abstract actors in the market. Only individuals act and make value judgements based on their subjective preferences by any given choice of action they conduct. Mises reminds that "...on the market it is not mankind, the state, or the corporative unit that acts, but individual men and groups of men, and that their valuations and their action are decisive, not those of abstract collectivities. To recognize the relationship between valuation and use value and thus cope with the paradox of value, one had to realize that not classes of goods are involved in exchange, but concrete units of goods." The latter point refers to the fact that there are only specific individual goods exchanged not entire class of goods such as 'gold' or 'cars'. (Mises 2003, 163)

4.3 Ethics in Economic Science

> *"Ethics is the discipline, or what is called in classical philosophy the "science," of what goals men should or should not pursue. All men have values and place positive or negative value judgments on goods, people, and events. Ethics is the discipline that provides standards for a moral critique of these value judgments. In the final analysis, either such a discipline exists and a rational or objective system of ethics is possible, or else each individual's value judgments are ultimately arbitrary and solely a result of individual whim." (Rothbard 1997, 78)*

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on the other hand, rests simply on the assumption of the *existence* of ends, and then deduces its valid theory from such a general assumption. It therefore has nothing to do with the content of ends or with the internal operations of the mind of the acting man."

The sciences are in themselves value-free and they provide laws about reality that can be used by those who make ethical judgements. Rothbard points out the role of praxeology which "...is thus a unique discipline within the social sciences; for, in contrast to the others, it deals not with the *content* of men's values, goals, and actions—not with what they have done or how they have acted or how they should act—but purely with the fact that they *do* have goals and act to attain them. The laws of utility, demand, supply, and price apply regardless of the type of goods and services desired or produced (Rothbard 1997, 70)." There is no ethical guidance but only data to be used for individuals in their endeavour to achieve their goals and objectives according to their values and judgement.
It is not appropriate as an "...economist *qua* economist to make any ethical or value pronouncements or to advocate any social or political policy whatsoever (Rothbard 1997, 80)." Rothbard states that an economist has only two choices if she wants to step outside of the value-free position. She can either use her own ad hoc personal value judgement and use that clearly as the policy basis or turn into an ethicist and develop and defend a sound ethical system while using the data of economic science. In the latter case one cannot simultaneously act in the capacity of an economist without compromising the value free principal of science. He emphasises the importance of the matter by stating that: "...it is the responsibility of any scientist, indeed any intellectual, to refrain from any value judgment whatever *unless* he can support it on the basis of a coherent and defensible ethical system." (Rothbard 1997, 80-82)

An example of ethical value judgement is to use Pareto's Unanimity Rule in economics[10]. The rule states that social welfare or social utility increases only if no individual is worse off and at least one person is better off after and because of the change. Lionel Robbins (1938) pointed out that this is possible only by interpersonal judgements and these are not possible with mathematical methods (e.g. subtraction, addition etc.) due to their non-cardinal (ordinal) nature. This results that an economist cannot state anything about the social utility (provided that there is no unanimity) or she implicitly and out of necessity compares the two groups of gainers and losers and by this act creates an ethical judgement of the groups' relative importance.
Jeremy Bentham was the first to introduce the famous concept "the greatest happiness of the greatest number" in his book "A Fragment of Government" in 1776. This is another example of an ethical value judgement. Felix Adler[11] points that " ...sociologists frankly express their ideals in terms of quantity and, in the fashion of

[10] In the cardinal sense.
[11] According to Rothbard in "Relation of Ethics", p. 673 by Felix Adler

Bentham, pronounce the greatest happiness of the greatest number to be the social end, although they fail to make it intelligible why the happiness of the greater number should be cogent as an end upon those who happen to belong to the lesser number." Even using the unanimity principle per se is not a value free statement but a clear signal of ethical approval of the current state of the affairs, which is naturally based on the existing value norms and ethical systems. (Rothbard 1997, 233-235; 84-86)

4.4 Free Market and Intervention

"Freedom and liberty always refer to interhuman relations. A man is free as far as he can live and get on without being at the mercy of arbitrary decisions on the part of other people (Mises 1998, 279)." A contractual society is based on individual's freedom and liberty. Mises continues: "[s]ocial cooperation under a system of private ownership of the means of production means that within the range of the market the individual is not bound to obey and to serve an overload (Mises 1998, 280)." In a voluntary society people are free in respect to each other but at the same time dependent on each other's contribution. They are restricted by the natural phenomenon of scarcity (e.g. natural resources) but free while serving others by serving themselves. Still, "[a]s far as he gives and serves other people, he does so of his own accord in order to be rewarded and served by the receivers. He exchanges goods and services, he does not do compulsory labor and does not pay tribute (Mises 1998, 280)." Mises emphasizes that there is no other kind of freedom and liberty than the kind that market economy brings about—the rest are based on various degrees of hegemonic rule. (Mises 1998, 280-281)

All exchanges in the free market are voluntary. Both parties gain (or expect to gain) from the exchange since otherwise they would not conduct the exchange. Their very act of exchange demonstrates that both parties benefit—it shows their preferences. Rothbard calls this the demonstrated preference: the act of choice shows the value preferences. By concluding that every exchange in the free market is conducted voluntarily and all parties clearly demonstrate that they have benefited from their exchanges it can be deduced that the free market benefits all its participants. Therefore it is shown that the free market increases social utility. This conclusion can be drawn even by using the unanimity principal. (Rothbard 1997, 212; 240)

It is worthwhile to mention the "...fact that each man, in pursuing his own self-interest, furthers the interest of everyone else, is a *conclusion* of economic analysis, not an *assumption* on which the analysis is grounded (Rothbard 2006, 876)." This laissez-faire conclusion can be found in the works of Frédéric Bastiat, Edmond About, Gustave de Molinari, and Arthur Latham Perry among others. For example, About says[12]: "Now what is admirable in exchange is that it benefits the two contracting parties. . . . Each of the two, by giving what he has for that which he has not, makes a good bargain. . . . This occurs at every free and straightforward exchange. . . . In fact, whether you sell, whether you buy, you perform an act of preference. No one constrains you to give over any of your things for the things of another." (Rothbard 1997, 244-245)

Intervention means the substitution of coercion over voluntary actions in society. It is an intrusion of aggressive physical force and it implies that the subjects of the intervention would not do otherwise what they are forced to do by the aggressor. "In contrast to the free market, therefore, all cases of intervention supply one set of men with gains *at the expense* of another set. (Rothbard 2006, 880)."

The state is an exceptional institution in society apart from all other market participants in two ways. Firstly it has the sole right to interfere by using violence towards any actual or potential market exchanges between other people. Secondly, it alone uses coercion to obtain its revenues (mainly via taxation).

Above it was proven that voluntary exchange among people increases social benefit. Now it is time to show that any coercive action does the opposite. For this two cases are needed. In the first one market participants A and B are prevented by a threat of violence to carry out an exchange they both would have done without the intervention. This means that both A and B have suffered a lowered utility due to the violent intervention by the aggressor. In addition, the aggressor has achieved a gain (or at least an anticipated gain) from the intervention since otherwise the restrictive action would not have happened. The end result is that some of the parties have gained (the government) and some of them have lost. In the second case the aggressor forces the market participants C and D to make an exchange, which they would not have done

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[12] According to Rothbard: Edmond Abou, *Handbook of Social Economy* (London: Straham, 1872), p. 104. Also, ibid. , pp.101-12; and Arthur Latham Perry, *Political Economy*, 21st ed. (New York: Charles Scribners's Sons, 1892), p. 180

otherwise. In this case the government has again gained and at least one of the exchange parties have suffered a loss in utility[13].

From these two cases it can be deduced that no government (or more generally no coerced) interference with exchanges can ever increase social utility. This can be extended into a more generic conclusion by including the fact that all government income is based on coercion and all its actions are dependent on this act of violence. Therefore it can be deduced that not any kind of government action can increase social utility (or welfare).

In summary can be stated that: 1) free market always increases social utility; and 2) no act of government can ever increase social utility[14]. (Rothbard 2006, 877-879; 1997, 242-244)

4.5 Government's Impact on the Market

Above it is shown that government cannot increase social welfare due to its violent nature. Even though it is not necessary to carry further with the analysis it is valuable to show some of the means how the government damages the voluntary society and creates discord.[15] This is especially relevant since the government seems to be almost ubiquitous in today's society.

There are only two ways to prosperity: the economic means (voluntary production and exchange) and the political means. The voluntary cooperation among market participants creates wealth to all its players according to the degree they serve each other in the society. There is no separate distribution process. Coerced confiscation of wealth hampers the production and exchange from their most efficient use to the degree of distortion. In addition it creates a new problem of wealth allocation that benefits those who are the most able to gain access and control of the state's distribution mechanism. There are many consequences for this action. Any kind of coerced wealth transfer benefits (e.g. subsidies from grants to licenses and monopoly rights) the inefficient at the expense of the efficient. For example a government-subsidised company can prolong its non-profitable operations and prevent the resources to be

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[13] Nothing can be stated about the social utility.

[14] In other words "...the maintenance of *a free and voluntary market "maximizes" social utility* (provided we do not interpret "mazimize" in a cardinal sense) (Rothbard 1997, 244).

[15] For deductive proof see (Rothbard 2006 and Mises 1998)

shifted into a more value-productive use. Distribution of wealth departs the earnings from their most efficient use, which impacts the consumer who is not able to gain full satisfaction of wants: the larger the government distortion the lower the overall standard of living for everyone. This becomes obvious when government operations extend and people are shifting away their energies from production to the political game of distribution allocation (or loot). The new group of privileged increases the burden of the efficient. "In sum, governmental subsidy systems promote inefficiency in production and efficiency in coercion and subservience, while penalizing efficiency in production and inefficiency in predation." (Rothbard 2006, 1254-1257)

Investment in praxeology means entrepreneurial activity that is used to buy producer's goods and services, not to buyer's own use and satisfaction, but to reshape and resell them to others, ultimately to the consumers. Coerced confiscation that directs resources to the aggressor's own ends and purposes is no investing—they are consumption expenditures (or spending) no matter their intention or the end result. Government uses resources to offer services either "free" or charging a fee from its "customers." It also acts as an owner and enterpriser. Government's services that are offered "free" are not truly free goods in the economic sense. If they were free they would not be goods but abundantly available for everyone (such as air). Government goods are not paid by the customer but levied by taxation. Any price below the free market price results increased demand that eventually exceeds any supply level available. Only in governmental services and goods there are "shortages", insufficiencies, deficiencies, and lack of availability—private enterprises always try to convince customers to buy more. Government has the problem of allocating its supply—it has no means to prioritise the most urgent uses and the most willing buyers from the submarginal users, which happens automatically by charging a price for the goods. In government's services all customers are artificially set at the same level except that the users are subsidised at the expense of the non-using taxpayers. In the free market consumers dictate the price level. In addition the free market provides the ultimate profit-and-loss test: most urgent wants gain more revenues ensuring their increased supply in the future and less important needs receive little or no demand resulting finally discontinuity of the goods offered due to lack of funding (and consumer interest). Government does not have this type of critical guidance system to direct its resource allocation—it has no rational way to know how much to spend and when to stop.

Neither has it any way to act as if would be a private business. Private ventures can obtain funds only either from investors or from their paying customers. An investor risks his own money that he has saved and thus expects to receive it back from the company's anticipated future profits. Both the investor and the customer are allocating their resources to the means that serve them the most and hence they are at their most efficient use. Government does not obtain its funding from investors or consumers. It merely asks for more funds and then uses its coercive power to obtain the resources—it has de facto unlimited resources available at its whim. This means that government can only play private venture since it is not risking its own money—there is no entrepreneurial risk. Nor has its bureaucratic managers true incentives to adjust to the consumer demand, they are not dependent on the consumer satisfaction. As the funding for government operations is not coming from paying customers there is no urge to be efficient nor is there any reasonable mechanism to ensure that the quality and the values of the service suit the needs of its customers.

Government's unlimited funding capability puts it to a favourable position in respect to private enterprises—it has the power to drive out private businesses and hence to make private investors cautious who are considering future investments in the same industry. Alas, bureaucratic managers, politicians, and government's inherent inefficiency are not very appealing business propositions for investors considering government owned or operated private enterprises. (Rothbard 2006, 1259-1272)

5 SUMMARY

It has been shown that the economic science can produce absolute and definite facts or laws about human life in society. These facts are not dependent on time, place, person, or any other circumstances. They are true as long as humans act. These laws cannot be tested or proved by empirical evidence. In social sciences there are no constants and all circumstances are results of complex multiplex of factors and relationships. What happens now or in the past cannot verify or tell anything about the future—humans have free will and their values and choices are subjective. They are unpredictable unlike atoms that have known and constant properties.

What praxeology in economics can tell us is what kind of effects certain actions will cause. These laws are not dependent on the actor or the situation. This information can help man to make better choices for selecting the best means for his ends. Still, economics is not in place to make ethical or value judgements nor can it predict the future. Subjective preferences are qualitative and cannot be measured or compared between people. Therefore it is not possible to measure how much a certain action is better than any other action nor what action one should take. This would require a value judgement and economics is neither an ethical system nor the science of ethics.

It was proven that a voluntary cooperation among members of society benefits all the participants. If they were not to benefit from their voluntary exchanges they would restrain from acting. The very act of action demonstrates a preference and choice that also maximises the utility and is the most efficient use of the means. There are only two types of action: voluntary means to ends or acts of violence—nothing between. Any interference to the free market voluntary order by coercion will reduce social utility and result inefficiencies and finally a lowered standard of living for everyone. Coercive action divides people to those who benefit at the expense of others and to those who lose. Taxation is a form of coercive action and it is used by the government to fund its operations.

Any act of government whatsoever cannot ever increase social utility. The maintenance of a free and voluntary market maximises[16] social utility and this applies to any type of voluntary exchange between any type or number of market participants including also any type of competition no matter whether "perfect" or against monopoly.

[16] In ordinal sense.

6 CONCLUSIONS

The following conclusions are based on the Misesian approach.

People in Finland are capable of providing innovative solutions and high tech products. The problem does not seem to be so much in the technical capabilities but in the art of getting enough customers (revenues) and market success. Business expertise and adequate resources are prerequisites for growth. Even the business expertise can be bought if there is enough capital available. But lack of capital can seldom be completely compensated by superior business skills. Finland is not a poor country per se. It has resources and capabilities but their current allocation does not support private market needs. Every action has its consequences and every choice results effects. These are not dependent upon whether they are acknowledged and understood or not. The facts do not change by spinning or merely by ignoring them.

The concerns of Finnish growth company sector's future direction and success are eligible. It is not an overstatement to say that it has already been in crises the last 5-10 years. The lack of available private capital is no new news. Finally it has just become so evident that it cannot be ignored anymore. The effects are for everyone to be seen and observed: lots of government intervention with very limited private sector players and ecosystem. There are no accidents or market failures. There are only results of the actions taken by everyone in the society. Finnish people prefer and value coercive aggression to the free market with its consequences. It does not come without high costs. With the recent study it has been shown that any action whatsoever by coercive force towards the free market will ultimately lower the standard of living for everyone to the degree of the aggression. Government's intervention favours the inefficient at the cost of the efficient and increases the burden of the productive. It prevents people from making their own choices and to satisfy their most urgent needs at their maximum level. Coercive action divides and breaks the harmonious and peaceful society into dog-eat-dog competition where everybody is after the distribution and allocation of the confiscated wealth. Bureaucracy is the result that cannot be avoided if the free market profit-and-loss test is not used. The market is ruthless—it does not favour or negotiate with anyone, not even with politicians. It just does its bidding in accordance with the

economic laws: the most urgent needs are preferred over the less urgent needs. Private investors can obtain their funds only by restraining from current consumption over anticipated future gains. In other words they have a cost and a choice to be made. If private individuals do not have enough after-tax earnings left after living and other necessary expenses they cannot save. And without savings there are no investments. And without investments there will be no new companies since they cannot get private capital for their ventures. In another words their services are not needed by the society—they are not valued. This is the true cost of government's intervention: all the services and the prosperity that have never been produced.

To summarise it can be said that any government action (and especially taxation) will harm the growth company sector and reduce its opportunities and possibilities for future wealth creation. Government investments will distort the market and scare away the private investors. Government's support system for growth companies destroys the private sector and turns it into an extension of bureaucracy that has no respect and capabilities for satisfying customer needs or supplying them with adequate services. *Laissez-faire* and start with the taxes.

6.1 Research Implications and Limitations

This research has been able to show that the problem areas are deeper in the society and cannot be easily corrected. The observed facts and evidences are only effects of the past decisions. Continuing to use the same methods for the problems that have been caused by the same line of thinking in the past will not solve the fundamental issues. Political bargaining and compromising have resulted the Finnish early stage innovation system to its current culmination point. The research findings have to be interpreted in the overall context of the study. Taken apart from the overall logical system and its rational will not provide any valuable solutions or alternatives to the existing state of affairs.

Therefore the study does not recommend withdrawing the existing support for the early stage companies provided that nothing else is changed. It is better to have something than nothing. Likewise the early stage private investment activity and support ecosystem will not recover and rejuvenate from the governmental intervention without drastic changes in the underlying value system in the Finnish society. For having adequate private resources (mainly private capital) for new innovations and ventures

requires that the overall level of tax burden is reduced dramatically. Piecemeal tax breaks are not sufficient since they do not improve the standard of living and purchasing power of the people but only shift the tax burden from one category of confiscation to another leaving the overall impact unchanged. Reducing taxes alone is neither sufficient action point. There needs to be equal reduction in the public expenditures that will result laying off government officials. Only lowering taxes and reducing the public expenditures together with deregulations and decreased governmental intervention will cause improvements in the overall standard of living (increased consumer demand) and additional savings that can be allocated to new investment opportunities by the Adam Smith's invisible hand.

This research is only a brief introduction to the Austrian economics and its applications. The study has not been able to address more in detail the real problems and their possible solutions for the early stage private market. It is not sufficient just to acknowledge the problems even though it is the necessary first stage: there needs to be practical solutions that can be implemented. Further research is required for concrete recommendations that enable smoother transition for the private industry and the overall economy—after all the new wealth and prosperity lay on the shoulders of the few individuals who build the future by their innovations and productivity.

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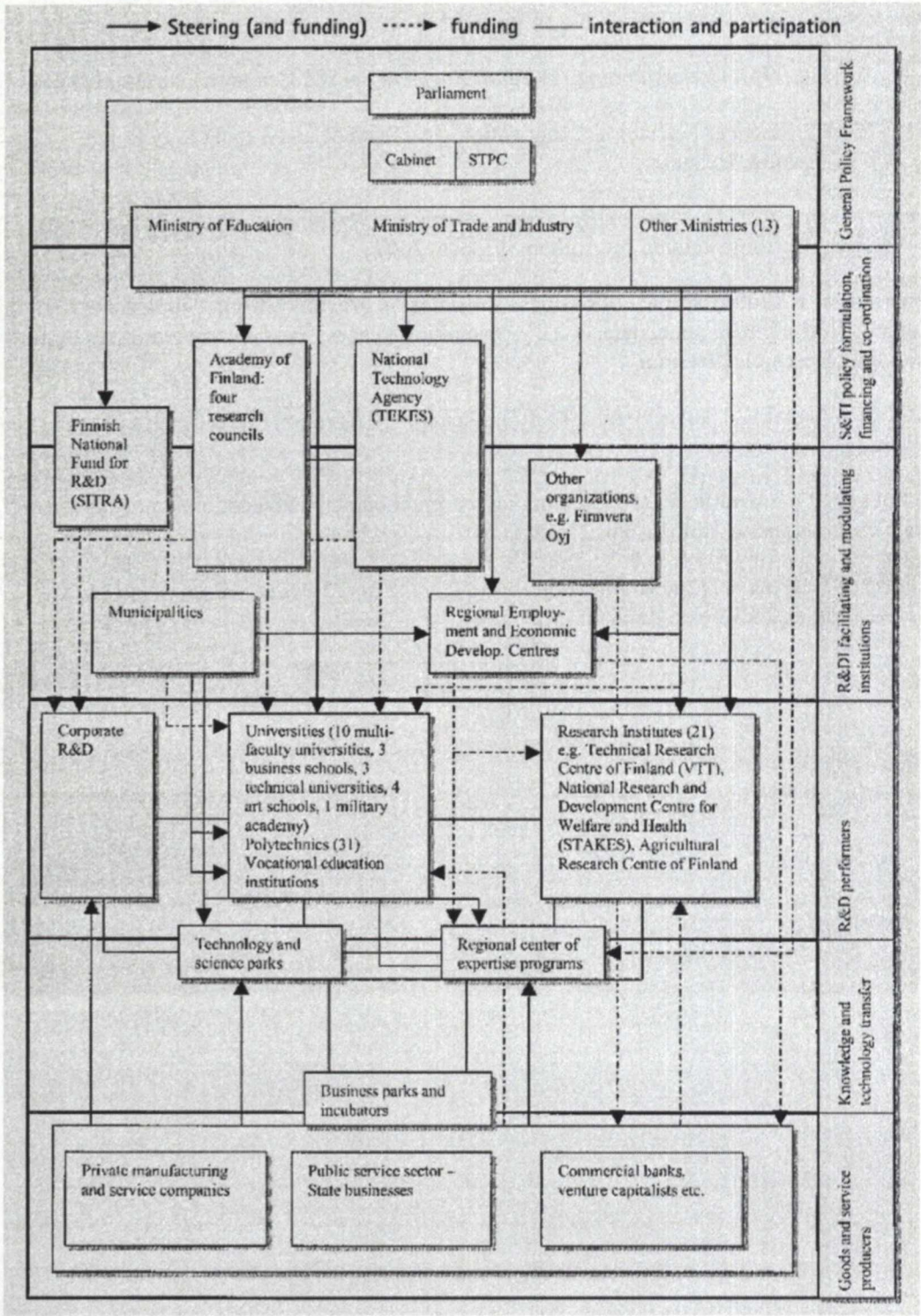
APPENDIX A: Governmental Policy Centred Organisation Chart of Finnish Innovation System



Source: Nieminen et al 2001, 37